

# Work Order ID 76838

**\*76838\***

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November 22, 2011 8:11:31 AM

Item ID: D6101-005 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Saddle Billet  
 Start Date: 11/22/11 Start Qty: 50.00 **\*50\*** Cust Item ID:  
 Required Date: 12/05/11 Req'd Qty: 50.00 **\*50\*** Customer:  
 Reference:

Approvals: Process Plan: CL Date: 11/11/22 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6101	Rev B								

100 PURCHASING 0.00  
**\*100\***  
 Purchasing Memo 0.00  
 Purchasing Issue P/O: 15518  
 a) Description: Aluminum billet  
 b) 5.00" x 8.250" x 2.50" thick  
 c) Tolerance on all dimensions are +0.030"/-0.000"  
 d) Grain direction along 5.00" length  
 e) Material: 7075-T7351 (QQ-A-250/12)  
 f) Material certification required

CL 11/11/23 50

110 Receive & Inspect for Damage & Mat'l Certs 0.00  
**\*110\***  
 Packaging Memo 0.00  
 Packaging Ensure material certification is attached

CL 11/11/23 50

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 76838

**\*76838\***

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November 22, 2011 8:11:31 AM

Item ID: D6101-005 Accept **\*N900040100\*** Setup Start **\*NS1\***  
Revision ID: Stop **\*NS2\***  
Item Name: Saddle Billet  
Start Date: 11/22/11 Start Qty: 50.00 **\*50\*** Cust Item ID:  
Required Date: 12/05/11 Req'd Qty: 50.00 **\*50\*** Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 <b>*120*</b> QC Quality Control	QC6- Inspect dimensions to drawing  Memo Ensure Material certification comply to Dwg D6101	0.00  0.00	<i>OK 11/12/08</i>			<u>50</u>	<u>0</u>		
130 <b>*130*</b> Packaging Packaging	Identify as per dwg & Stock Location: <u>MAT 41</u>  Memo	0.00  0.00	<i>OK 11/12/08</i>			<u>50</u>	<u>0</u>		
140 <b>*140*</b> QC Quality Control	QC21- Final Inspection - Work Order Release  Memo	0.00  0.00							<i>11/12/08</i> <i>ME</i> <i>11-12-08</i>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

November 22, 2011 8:11:30 AM

Page 1

Work Order ID: 76838

Parent Item: D6101-005

Parent Item Name: Saddle Billet

Start Date: 11/22/11

Required Date: 12/05/11

Start Qty: 50.00

Required Qty: 50.00

Comments: IPP A: 01.05.04New IssueEC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-005P 7075-T7351 8.25X5.0X2.5		Purchased	No			110	Each	0.0000	1	50			

*Rec'd 12/05/11 (50)*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

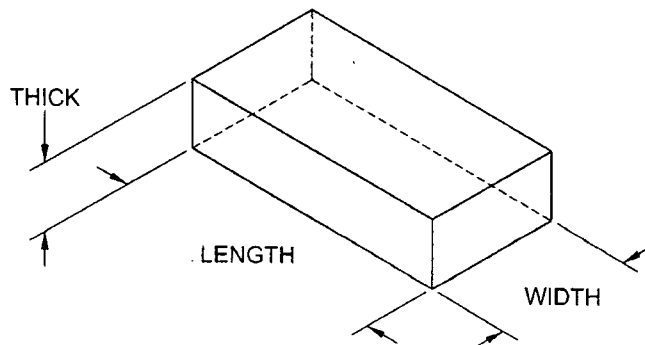
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# SPECIFICATION CONTROL DRAWING



PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

**B** ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6101-001	7075-T7351 (QQ-A-250/12)	6.000	6.250	2.000	Along 6.000 Length
D6101-003	7075-T7351 (QQ-A-250/12)	7.875	6.250	2.000	Along 7.875 Length
D6101-005	7075-T7351 (QQ-A-250/12)	5.000	8.250	2.500	Along 5.000 Length
D6101-007	7075-T7351 (QQ-A-250/12)	7.750	8.250	2.500	Along 7.750 Length
D6101-009	7075-T7351 (QQ-A-250/12)	8.700	8.250	2.500	Along 8.700 Length
D6101-011	7075-T7351 (QQ-A-250/12)	9.700	8.250	2.500	Along 9.700 Length
D6101-013	7075-T7351 (QQ-A-250/12)	10.100	8.250	2.500	Along 10.10 Length
D6101-015	7075-T7351 (QQ-A-250/12)	9.450	6.250	2.500	Along 9.450 Length
D6101-017	7075-T7351 (QQ-A-250/12)	6.350	6.250	2.250	Along 6.350 Length

**B**

CL 11/12  
W/O. 76838

**RELEASED**  
09/07/15/W

B	ADDED D6101-015/-017, ADD ASTM B209	RF	09.04.23
A	NEW ISSUE	CP	01.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	CP	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D6101	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	SADDLE BILLET, 7075	NTS
DATE	09.04.23	<small>COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**Castle Metals®**

A. M. Castle &amp; Co.

**BORDEREAU DE MARCHANDISES**

Page 1 of 2

No de Formulaire d'Emballage / Shipment No: 1089986

<b>Expédié de / Ship From:</b> A. M. Castle & Co. (Canada) Inc. MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		<b>Vendu à / Sold To:</b> DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		<b>Expédié à / Ship To:</b> WILL CALL-MONTREAL 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		<b>Livré à / Deliver To:</b> WILL CALL-MONTREAL 835 SELKIRK AVENUE POINTE CLAIRE, QC H9R 3S2 CA	
<b>Date d'expédition / Date Shipped</b> 05-DEC-2011	<b>F.O.B.</b> ORIGIN	<b>Modalités de transport / Freight Terms</b> Prepaid		<b>Transporteur / Carrier</b> MANITOULIN		<b>No du Bon de connaissance / BOL No</b> 1089986-2	

<b>Détails d'expédition / Shipment Details</b>	<b>Destination finale / Final Destination Branch - MON</b>
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<b>N° de commande / Order No</b> 1853452	<b>N° de ligne / Line No</b> 1	<b>N° d'article / Item No</b> 752241.MO	<b>Description</b> 2.5000.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 CUT 2SIDED TO 8.25 IN ( + .0620/- .0000 IN (GRAIN TO RUN ALONG 5")) X 5 IN ( + .0620/- .0000 IN (GRAIN TO RUN ALONG 5")) - ALUMINUM PLATE SAW SPECIFICATIONS: QQ-A-250/12	
<b>N° de bon de commande / Purchase Order No</b> 15518		<b>N° de pièces / Part Number</b> YOUR ITEM NUMBER: D6101-005	<b>Qté commandée / Ordered Qty</b> 50.00 PCS	<b>Qté Facturée / Invoice Qty</b> 50.0000 PCS

<b>Détails / Details</b>							
<b>N° de livraison / Delivery No :</b> 107514308	<b>Usine / Mill</b>	<b>No de coulée / Heat Number</b> 470001A9	<b>Code méc / Mech Id</b>	<b>Pièce s / PCS</b> 50	<b>Largeur (Pouce) / Width (IN)</b>	<b>Longueur (Pouce) / Length (IN)</b>	<b>Qté expédiée / Shipped Qty(LBS)</b> 533.28

Ces marchandises/technologies sont sujettes aux règlements de l'Export Administration et du département d'état des États-Unis. Si elles ont été/sont exportées, elles doivent se conformer à ces règlements. Toute modification du contrat de transport contraire aux lois des États-Unis est interdite.  
These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.  
Nous certifions par la présente que le matériel couvert par cette certification est conforme aux spécifications susmentionnées et aux exigences applicables pour le matériel, y compris toute spécification faisant partie de la description. Les rapports d'essai sont archivés pour fins de consultation. Toute requête concernant du matériel défectueux sera rejetée à moins qu'elle ne soit faite par écrit à A. M. Castle & Co. dans les 60 jours suivant la livraison. Le matériel coupé sur mesure ou coupé par le client ne peut être retourné pour crédit.  
We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Ce matériel a été reçu et inspecté par \_\_\_\_\_ Date: \_\_\_\_\_ Name: \_\_\_\_\_

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Date Printed: 05-DEC-2011 02:45:16 PM



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A. M. Castle & Co.

**BORDEREAU DE MARCHANDISES**

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Reviewed by Authorized Castle Metals Representative:			
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SHIP TO: CASTLE METALS AEROSPACE 4175 ROYAL DRIVE, SUITE 600 KENNESAW, GA 30144
SOLD TO: CAS AERO% A M CASTLE METALS ATTN:BOB OHR % ACCTS PAYABLES 3400 NORTH WOLF RD FRANKLIN PARK, IL 60131

# KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215  
Phone: (800) 367-2586

## CERTIFIED TEST REPORT

Serial Number  
4160783

CUSTOMER PO NUMBER: 7748		WORK PACKAGE:		CUSTOMER PART NUMBER: 752241 AMC CA-15745		SHIP RUN/LOAD ID: 101523/21		GOV'T CONTRACT NUMBER:	
KAISER ORDER NO: 1080685	LINE ITEM: 1	SHIP DATE: 23-APR-2009	ALLOY: 7075	CLAD: BARE	TEMPER: T7351	PRODUCT DESCRIPTION: MILL FINISH PLATE			
WEIGHT SHIPPED: 8988 LB	QUANTITY: 5 PCS EST.	B/L NUMBER: 2022418		GAUGE: 2.5000 IN		WIDTH: 48.500 IN		LENGTH: 144.500 IN	

### Certified Specifications

AMS 4078/RevG  
ASTM B 209/Rev07  
BSS 7055/RevA  
DPS 4.713/RevAH  
GSS16100/RevG/Amd1

AMS-QQ-A-250/12  
ASTM B 594/Rev06  
CMMP 025/RevR  
EAC MS1011/RevE  
MMS 159/RevN

AMS-STD-2154  
BAC 5439/RevH  
CSTI 006/RevC  
GAMPS 9101/RevB  
PS 21211/RevK

Test Code: 4297

### Test Results

Lot: 467299A4 Cast 222

Drop 18

Ingot 1

(ASTM E8/B557)  
(EN 2002-1)

Tensile: Temper  
T7351

Dir / # Tests  
LT / 2 (Min:Max)

Ultimate KSI (MPA)  
72.8 : 73.0  
(502 : 503)

Yield KSI (MPA)  
61.3 : 61.5  
(423 : 424)

Elongation %  
11.1 : 11.1

(ASTM E1004)  
(EN 2004-1)

Conductivity %IACS :  
(MS/M) :

40.6 Min  
23.5 Min

40.8 Max  
23.7 Max

(ASTM E1251)

Chemistry:  
Actual

SI  
0.10

FE  
0.20

CU  
1.5

MN  
0.02

MG  
2.5

CR  
0.20

ZN  
5.7

TI  
0.04

V  
0.01

ZR  
0.01

OTHER  
TOT 0.05



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APR 27 2009



Trentwood Works - Spokane, WA 99215  
Phone: (800) 367-2586

## CERTIFIED TEST REPORT

Serial Number  
4160783

Lot: 470001A9 Cast 222 Drop 27 Ingot 2

(ASTM E8/B557)  
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	72.4 : 74.4 (499 : 513)	60.3 : 63.3 (416 : 436)	11.1 : 11.2

(ASTM E1004)  
(EN 2004-1)

Conductivity %IACS :	39.8 Min	41.6 Max
(MS/M) :	23.1 Min	24.1 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.09	0.19	1.5	0.02	2.5	0.20	5.8	0.04	0.01	0.01	TOT 0.05

Lot: 470010A0 Cast 222 Drop 29 Ingot 3

(ASTM E8/B557)  
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	72.7 : 74.4 (501 : 513)	60.7 : 63.7 (419 : 439)	10.7 : 11.2

(ASTM E1004)  
(EN 2004-1)

Conductivity %IACS :	40.8 Min	41.2 Max
(MS/M) :	23.7 Min	23.9 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.09	0.20	1.5	0.03	2.4	0.20	5.6	0.04	0.01	0.01	TOT 0.05

### ALLOY LIMITS

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075 MIN	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder

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APR 27 2009



**KAISER  
ALUMINUM**

Trentwood Works - Spokane, WA 99215

Phone: (800) 367-2586

**CERTIFIED TEST REPORT**

Serial Number

4160783

**TEST NOTES**

7075-T7351 plate 3.001-3.500" thick, if ultrasonically inspected, meets requirements of CMMP025 per SDR CMMP025-KaiserT-1. 7075-T7351 plate 3.501-5.000" thick, if ultrasonically inspected, meets requirements of CMMP025 per SDR CMMP025-KaiserT-2.

Metal represented by this test report was immersion ultrasonically tested from one side and meets the Class A and Class B requirements of all specifications referenced on this test report.

**RECEIVED**  
APR 27 2009**CERTIFICATION**

KAISER ALUMINUM FABRICATED PRODUCTS, LLC (KAISER) HEREBY CERTIFIES THAT METAL SHIPPED UNDER THIS ORDER WAS MELTED IN THE UNITED STATES OF AMERICA OR A QUALIFYING COUNTRY PER DFARS 225.872-1(a), WAS MANUFACTURED IN THE UNITED STATES OF AMERICA, AND MEETS THE REQUIREMENTS OF DFARS 252.225 FOR DOMESTIC CONTENT. THIS MATERIAL HAS BEEN INSPECTED, TESTED, AND FOUND IN CONFORMANCE WITH THE REQUIREMENTS OF THE APPLICABLE SPECIFICATIONS AS INDICATED HEREIN. ALL METAL WHICH IS SOLUTION HEAT TREATED COMPLIES WITH AMS 2772. ANY WARRANTY IS LIMITED TO THAT SHOWN ON KAISER'S STANDARD GENERAL TERMS AND CONDITIONS OF SALE. TEST REPORTS SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF KAISER ALUMINUM FABRICATED PRODUCTS, LLC LABORATORY. THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTIRE ON THE CERTIFICATE MAY BE PUNISHED AS A FELONY UNDER FEDERAL LAW. ISO-9001:2000 CERTIFIED.

**BILL POYNOR, LABORATORIES SUPERVISOR**